

Teacher Research as a Self-Extending System for Practitioners

By Kelly Chandler-Olcott

The last 15 years have seen a groundswell of attention to teacher research—what Cochran-Smith and Lytle (1993) call “systematic, intentional inquiry carried out by teachers” (p. 7)—in the professional literature about education, particularly in the field of literacy. Although, as McFarland and Stansell (1993) point out, teacher research is not a new tradition, nor is it an exclusively American one, increases in the number of teacher-research studies presented at conferences and published in journals suggest that the movement has been on a significant upswing in the United States. Various school- and university-based scholars argue that teacher research has the potential to prompt educational change (Fleischer, 1994; Hollingsworth & Sockett, 1994), transform teachers’ perceptions of themselves as professionals (Goswami & Stillman, 1987; Hubbard & Power, 1999), and contribute

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to the generation and critique of knowledge about teaching and learning (Cochran-Smith & Lytle, 1993, 1999; Ray, 1993). Recently, several professional organizations have even called for teacher research to be a part of their frameworks for professional licensure (Duke, Elliott, & McCracken, 1999).

For all of these reasons, teacher educators have begun to include attention to inquiry into their work with both prospective and practicing teachers. Pro-

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grams in science education at Syracuse University (Tillotson, 1998) and English education at the University of Georgia (Graham & Hudson-Ross, 1999), for example, require teacher candidates to conduct empirical research projects during their internships, often in collaboration with their mentor teachers. Institutions such as the University of Maine, Lewis and Clark College, Indiana University, and the University of Pennsylvania, among others, make teacher inquiry central to their graduate programs in literacy education. While the requirements for these experiences differ across contexts, their primary purpose seems to be consistent: to introduce teachers to procedures for formal inquiry that can be used to improve and inform their work on an ongoing basis.

In order for inquiry-focused initiatives such as these to have the greatest possible impact on the largest number of teachers, however, more needs to be known about the complexities of practitioner research in K-12 settings. Research shows that new teachers are often critical of the gap they perceive between what they learn in methods courses and what they experience as realities in the classroom (Nagel, Golez, Nieto, & Whitney, 1999). Teacher educators committed to inquiry-driven conceptions of professional development need to avoid similar disconnect between what teachers learn about research in courses and workshops and what they are able to carry out in the field. Whether we work with preservice students or inservice practitioners, one of our central challenges is to help those teachers develop what Bisplinghoff (1998) calls an “organic” approach to inquiry—one that is integrated seamlessly into the teaching-learning cycle—and not just to help them complete a course project or write a paper for publication.

One of the best ways to ground our teaching of inquiry strategies in the complexities of K-12 classrooms is to draw on insights from studies that explore how successful teacher researchers pursue and perceive their work (Allen, Cary, & Delgado, 1995; Chandler & The Mapleton Teacher-Research Group, 1999; Baumann & Duffy-Hester, 2000; Cochran-Smith & Lytle, 1993; Freedman et al., 1999; Meyer et al., 1998). Such studies can provide us with concrete examples to share with learners of the ways that experienced teacher researchers conceptualize research questions, adapt traditional research methods to their needs, and make adjustments in their teaching based on their findings. The studies also present different structures and organizational models for research collectives to support individual inquirers in their work.

Meant to contribute to this growing body of research on teacher researchers' processes, this article reports findings from a case study (Stake, 1995) of a teacher-research group that I facilitated in one elementary school from 1996-2000 (see also Chandler, 1999; Chandler & the Mapleton Teacher-Research Group, 1999; Chandler-Olcott, 2001). From the beginning, the case study was guided by the following questions: (1) What factors allow a schoolwide research group to sustain itself over time? (2) What roles played by a university-based member are beneficial to a school-based research group? and (3) How do research-group members pursue inquiry in their classrooms, and how does this inquiry affect their teaching?

In the present article, I focus on the third of these questions. After an overview of the theoretical perspectives that informed my work, I describe the Mapleton Teacher-Research Group, considering both teacher-members' activities and my own role as facilitator. Using early literacy educator Marie Clay's (1985, 1991) construct of the self-extending system of strategies as an analytical tool, I draw connections between the work children do in learning to read better and the work teacher researchers do in learning to teach better. I conclude with recommendations for practice intended to support teachers in using inquiry as a self-extending system for teaching.

Theoretical Perspectives

From the beginning of my work in Mapleton, both my research and facilitation were influenced by principles of social constructivism. Social constructivists such as Wood (1988) and Dixon-Krauss (1996) focus on the ways that children develop understandings of the world within social contexts, rather than receiving knowledge transmitted by others or "inventing" knowledge by themselves. As I see it, classroom-based inquiry is built on similar premises for teacher-learners. In collaboration with each other in particular school settings, teacher researchers construct understandings of their classroom practices, rather than relying on external authorities such as textbook publishers or curriculum developers to direct their work (Bissex, 1996; Cochran-Smith & Lytle, 1993). In these social contexts for learning, numerous people (e.g., university-based collaborators like me, administrators like Mapleton principal Gail Gibson, and group members themselves) serve as "the more capable other" (Vygotsky, 1978) and scaffold learners' performance at a higher level. Such a theoretical stance led me to view inquiry as a social and cultural phenomenon—what Vygotsky calls a "higher psychological function"—whose meaning was constantly negotiated and renegotiated within the context of the research group.

In addition, I used Clay's (1985, 1991) concept of the self-extending system of strategies as a theoretical lens during data analysis. Clay emphasizes that nearly all children come to school with cognitive systems in place to learn about both oral language and the world in which they live. While these understandings are necessary for learning to read, they are not sufficient by themselves. Children also need to grasp some basic concepts about print (e.g., directionality and one-to-one correspondence), as well as be familiar with various strategies (e.g., prediction, self-monitoring, and self-correction) that help them construct meaning from print. When young readers control these strategies and are able to use them flexibly, they are able to learn more about written text and how it works from each subsequent encounter. According to Clay, this self-extending system of strategies creates a "forward thrust" (1991, p. 4), a way for young readers to learn to read better by reading. Considering my data in light of Clay's work helped me to consider the range of strategies used

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by Mapleton teacher researchers, as well as how those strategies were integrated with each other.

Methods

Setting and Participants

One of four K-5 schools in a consolidated rural district, Mapleton Elementary is located in northern Maine near the Canadian border. The school serves about 250 children, nearly all of whom come from working- and middle-class Caucasian families, and the 11 full-time teachers and the teaching principal have similar profiles. School-initiated staff development has been taking place since 1986, when the faculty adopted a literature-based philosophy for literacy instruction (Goodman, 1986; Weaver, 1990). Since then, various initiatives have supported teachers' increased understanding of writing process, multi-age classrooms, and family literacy.

The most recent of these staff-development initiatives, the Mapleton Teacher-Research Group, was born in 1996 when a grant proposal written by teachers Martha LaPointe, Lois Pangburn, and Lynne Brabant was funded by a county-level organization. During the group's first year, teachers studied the effects of various instructional practices on struggling readers' improvement. Eventually, with the help of a second grant from the Spencer Foundation's Practitioner Research and Communication Mentoring Program, group members moved on to schoolwide investigations of spelling (1997-98) and assessment (1998-99; 1999-2000). Each teacher devised an individual research question or area of focus that related to the umbrella topic. During the year of spelling investigations, for example, questions ranged from Diane Smith's "What happens when kindergartners 'have a go' at spelling pictured words?" to Kimberley Wright's "What effect do weekly spelling meetings have on my fourth graders' awareness of spelling strategies?"

Held after school every four to six weeks, 90-minute research-group meetings offered teachers the chance to discuss professional readings, draft and refine research questions, develop research plans, and analyze data from their classrooms. From the beginning, membership was open to all teachers but required for none, as participation was in addition to staff-development opportunities provided by the district. During the group's first year, nine of 11 teachers and an instructional aide took part; in subsequent years, all faculty members participated, although individual levels of involvement tended to fluctuate from year to year.

Role of the Researcher

I was the research group's university-based facilitator from its inception in 1996 until 2000, when it became impossible for me to travel regularly to Maine from a new position in New York. The writers of the initial grant invited me to join them because of my experience editing a teacher-research journal and my personal connections with

Mapleton, where I attended elementary school and where my family still lives. My duties as facilitator included running the group's monthly meetings, providing access to professional resources, conducting research conferences with members, and gathering data for individual teachers in their classrooms. I also organized and led the group's two summer retreats, one in 1998 and the other in 1999.

My research role in this project is best described as active membership, Adler and Adler's (1994) term for "researchers who [become] involved in the setting's central activities, assuming responsibilities that advance the group" but whose participation still differs in marked ways from those who live and work within the setting (p. 380). Since I am a university professor, my experiences in the group were clearly different from the experiences of the other members who taught at Mapleton. Yet, because I juggled roles as the researcher of and participant in the group, I faced many of the same challenges that K-12 teacher researchers face. For example, I had to balance my desire to study the group with the members' need for me to lead it (Chandler-Olcott, 2001). My involvement in the group's work sometimes made it difficult for me to perceive certain kinds of patterns in the data. At the same time, my long-time role as facilitator tendered some of the same benefits that teacher researchers often enjoy, including well-established relationships of trust, a deep understanding of the school/community context, and a commitment to the group's goals that transcends a personal research agenda. Additionally, group members' status as researchers themselves put them in a unique position to participate in my analysis, cross-checking my conclusions during analysis and commenting on various iterations of this paper.

Data Sources

The study was longitudinal, spanning four years, and it involved informants who made their own systematically-gathered data available to me in addition to the data I gathered directly. For both reasons, the data were extensive and diverse, including the following:

- √ fieldnotes and transcripts from research-group meetings (1996-2000), including the two summer retreats in 1998 and 1999;
- √ fieldnotes from research conferences with members and observations in their classrooms (1996-2000);
- √ artifacts from research-group members' classrooms, collected by them, or in some cases, by me (1996-2000);
- √ 30- to 60-minute individual interviews with members of the research group, taped and transcribed in January, 1999;
- √ copies of e-mail messages I sent to and received from members (1996-2000);

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✓ memos and journals I wrote following face-to-face and telephone interactions with research-group members (1996-2000).

Data Analysis

I began data analysis using inductive approaches described by Strauss and Corbin (1998) and Spradley (1980). I printed my transcripts and fieldnotes with a wide margin for notations then began to label units of text with preliminary codes (e.g., “barriers to inquiry,” “purposes for inquiry”). After several passes through the data, I began to construct domain analyses, graphic representations of semantic relationships between concepts (Spradley, 1980).

A graphic organizer entitled “Strategies used by teacher researchers to pursue their inquiry” called to mind the self-extending system of strategies, Clay’s (1991) construct to explain how young learners gain increasingly sophisticated control over the reading process. Research-group members and I first encountered this phrase during our first year together, when several of us read *Guided Reading* (Fountas & Pinnell, 1996), a popular professional resource for literacy educators. At that time, we briefly discussed how the self-extending system might serve as a metaphor for our work. After I traced the concept through earlier writing by Clay during the data-analysis phase of the study, three group members and I read excerpts from Clay’s work and discussed in more depth the numerous links we saw between children learning to read better and classroom-based researchers learning to teach better. Later, during a full meeting of the group, these three teachers and I discussed our ideas with the rest of the members, all of whom agreed that the self-extending system could be applied to their work as inquirers as easily as it could to young readers.

Results

Connections between the self-extending system of strategies and teacher inquiry crystallized for research-group members and me when we replaced the words “reader” and “reading” with “teacher” and “teaching” in the following passage from Marie Clay’s (1991) *Becoming Literate*:

Once a *teacher* (reader) is using a set of strategies which enable him to monitor his own *teaching* (reading) and check one source with other sources in a sequential problem solving process, then engaging in these activities serves to extend the potential of the *teacher* (reader) to engage in more difficult activities and he assumes the major responsibility for learning to *teach* (read) by *teaching* (reading). (p. 317; substitutions are in italics, the original text in parentheses)

Because of the central place of this passage in our discussions, I have chosen to use three key strategies mentioned in it—monitoring, cross checking, and problem solving—to organize my discussion of results from the study. In the sections that follow, I describe how each of these components of Clay’s self-extending system related to inquiry pursued by Mapleton teachers. Although I draw

on examples from the research group as a whole, my analysis focuses on two individual projects: one on literature circles by fourth-grade teacher Lorna Tobin in the spring of 1997, and the other on portfolio assessment by first-grade teacher Lois Pangburn during the 1999-2000 school year.

Monitoring

According to Clay (1991), strategic control enables a child to “monitor his own reading” (p. 317), a concept that is central to the self-extending system. Young readers must learn to notice discrepancies between what they read and what the text says. When children are not aware of the “dissonance among messages that ought to agree” (Clay, 1991, p. 329), they are at particular risk for reading failure. Teachers must also learn to monitor their practice for strategies and structures that have outlived their intended purpose, disadvantage particular groups of children, or create tension in the classroom community. For many teacher inquirers, these dissonances represent the beginnings of a research question.

At Mapleton, spelling represented one of the most significant sources of schoolwide dissonance, as everyone in the group felt that students’ spelling on standardized tests and in daily writing assignments lagged behind their general competence as readers and writers (Transcript Excerpt, 9/23/97). Having acknowledged this gap, teachers were forced to reexamine their teaching of spelling—the research equivalent of a child’s decision to reread when a miscue based on one piece of data doesn’t square with another piece. Members’ monitoring of student performance across the K-5 continuum led to schoolwide inquiry into instructional practices to promote students’ appreciation for and use of efficient spelling strategies.

Lorna Tobin’s study of literature circles grew from a similar realization that students’ performance in a particular content area could be improved. Her ongoing monitoring of her literacy program suggested an over-reliance on teacher read-alouds as an instructional approach (Research Conference Notes, 2/14/97), and she wondered whether student-led discussion groups would lead to greater independence and more personalized responses to literature than whole-class approaches alone. To focus her inquiry in this area, she devised the following research question—“What happens when fourth graders, particularly those who are struggling readers, participate in literature circles?”—and began to gather data (see Chandler, 1999, for a more detailed discussion of this project).

When group members settled on assessment as their umbrella topic for the 1999-2000 school year, Lois Pangburn decided to study the portfolio process systematically in her first-grade classroom. Although Lois believed that portfolios would offer the children opportunities to analyze their work, identify marks of progress, and set goals for improvement, she had limited experience with this assessment tool and therefore felt her inquiry would assist her in monitoring its implementation. After observing children during portfolio selection sessions in September and October, she identified a source of dissonance to investigate further.

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In numerous cases, students' criteria for selection had little to do with reflection on the quality of their work: "One child's reason for putting a piece in," she wrote, "is that he had painstakingly made an exact copy so he could take it home and the other one could stay at school!" (E-mail, 10/27/99). Investigation of students' purposes with the portfolios became an important area of focus for Lois's inquiry.

Cross-Checking

According to Clay, the ability to cross-check information from more than one source is critical to early reading success. Efficacious young readers confirm hypotheses based largely on a picture clue by using an initial consonant, or they draw on syntactical information at the same time they use their knowledge of a particular genre. Similarly, most proficient teacher researchers use more than one data source to answer questions about their practice, although their choices don't always resemble those used by traditional researchers. Consider, for example, this list of data possibilities from veteran teacher-researcher Karen Gallas (1994), whose work explored various sign systems as tools for children's learning:

After joining the Brookline Teacher Research Seminar in 1989, my vocation as a collector quickly became full-blown. I moved from collecting art, to audiotaping and transcribing children's discussions and interviews, to collecting everything that caught my eye. Now I pick children's notes out of the trash, record bits of conversations on the playground, save junk sculptures, copy children's math calculations off the board, hoard their doodles, and record my own astonishment at recess antics. (p. 5)

Like Gallas, members of the Mapleton research group devoted a good deal of energy to considering data sources to draw on for the most complete and complex picture of learning in their classroom. For example, when fourth-grade teacher Kimberley Wright was researching the effects of weekly spelling workshops on her students' use of spelling strategies, she frequently documented her observations of those meetings in her teaching journal (Wright, 2000). She cross-checked her hypotheses about the workshop's effectiveness (or, on occasion, its *lack* of effectiveness) with data from charts generated by the class, students' spelling notebooks, and interviews. Kim's possession of so much information made her more confident about conclusions she came to about her class, just as a reader who uses multiple cuing systems can be more confident about constructing a message that resembles the author's intent.

In contrast to Wright's project, which began with her teaching journal, Pangburn's inquiry into portfolios began with analysis of the first graders' work. The initial step for Lois in understanding students' perceptions was to examine both the pieces they had selected and the entry slips they completed describing why each piece had been included. In addition, she took observation notes as she circulated in the room during selection sessions. She soon realized, however, that these two

sources of data were insufficient, partly because of the children's emergent writing skills and partly because of their lack of experience with the language of reflection (Research Conference Notes, 4/29/99). In order to cross-check the data, she devised a set of questions to guide brief interviews that she, her classroom aide, and college volunteers conducted with each student. These triangulated data were richer and more trustworthy than the student-generated written data, and the collection method allowed for the interviewer to question the children, probing their responses and helping them to elaborate. The information Lois gleaned from the combination of the three sources helped her begin to consider the selection process from the students' perspectives and led her to make adjustments discussed in the subsequent section.

Tobin's initial source of data for her research was observational. As the literature circles met, she moved around the room to eavesdrop and make occasional notes. As she listened, it became apparent to her that students needed more explicit instruction about how to manage their discussions. To cross-check this conclusion, she sought additional information. First, she provided students with cassette recorders to capture their conversations so she could listen closely to them, even if she wasn't present during the meeting (E-mail, 3/10/97). Second, she asked them to complete a series of question stems like the following: "What I like most about reading discussion groups is..." and "One thing I would change about reading discussion groups is...." Analysis of these data, which was undertaken by the entire research group during a meeting, revealed that students did indeed feel a greater sense of autonomy in their discussions but they were struggling to use their journal entries to launch and sustain discussions (Student Artifacts, 4/17/97). Cross-checking her assumptions based on observational data allowed Lorna to zero in on the source of the problem: very few students had a concrete model for free-flowing discussions that were not directed by a teacher.

Problem-Solving

In her discussion of the self-extending system, Clay (1991) characterizes reading as a problem-solving process, with participation in that process serving "to extend the potential of the reader to engage in more difficult activities" (p. 317). According to her, the child "observes his own behaviour and he assesses his own behaviour. Has he solved it? Has he got it right? Do all the angles of the jigsaw fit in that particular slot? His search ends when it makes sense within his knowledge of the world" (p. 341). Having made sense of one particular puzzle, a young reader becomes better able to make sense of others.

Members of the research group used similar strategies associated with formal inquiry to solve problems they identified in their classrooms. When member Martha LaPointe observed a disturbing pattern of student interruptions in her notes from one-on-one conferences, she designed a series of activities meant to foster students' independence during times when she could not oversee their work directly. After students participated in these activities, Martha called them together for regular

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meetings to discuss the challenges they faced and the strategies they used to approach them. Over time, students gradually learned to manage resources, settle disputes, and move from completed tasks to new ones without the guidance of their teacher. Martha's data-driven problem-solving paved the way for a more smoothly-working classroom environment.

Having identified students' lack of a discussion model as a problematic aspect of their work in literature circles, Tobin was able to focus her energy productively. With assistance from me and another member of the research group, Lorna recruited a group of older and more experienced students to demonstrate how discussion participants pose questions to each other and build on each other's points. As the fifth graders talked about a novel they had read, the fourth graders took notes about the behaviors they observed. Later, when the guests were gone, Lorna debriefed the experience with her students, asking them to consider the differences between their brief, halting discussions and the lengthy, smoothly-flowing one they had just witnessed. Together, they made a list of strategies the children could use to improve the quality of their literature-circle discussions. While this single intervention did not produce perfectly smooth discussions, Lorna did note considerable improvement in students' ability to raise topics and sustain focus when she observed their subsequent group meetings. Her designation of a research focus and analysis of data from several sources helped her devise a solution to a problem that had been nagging at her classroom practice for some time.

After several rocky selection and reflection sessions in her first-grade classroom, Pangburn admitted she "wanted to throw in the towel" on portfolios. She persevered because her experience as a teacher researcher had taught her that "you can sometimes see things over time that are not readily apparent at first" (E-mail, 12/16/99). For most of the 1999-2000 school year, she saw the children's selection criteria as problematic: "Each time they selected work [for their portfolios], they had to answer certain questions that I designed. I kept changing the questions because I didn't like the answers I was getting. Then I began to think that maybe the answers were fine and my questions stunk!" (E-mail, 5/28/00). Lois's data analysis led her to two conclusions: (1) she needed to model the selection process herself and use language the children could adopt themselves, and (2) she needed to require that both teacher- and child-selected artifacts be included in the portfolios. The latter adjustment would ensure the representation of the children's perspectives on their work (including those perspectives that were different from her own) while preserving a role for Lois as the "more capable" adult (Vygotsky, 1978).

Inquiry offered the members of the Mapleton research group a flexible, context-specific approach to problem-solving. When Lorna, Lois, and their colleagues encountered what Lois's first-grade readers would call "a hard bit" in their teaching, they did not need to abandon or resort to random experimentation in order to address the snag. Instead, they turned to the strategies they had learned from formal inquiry. They questioned, categorized, and reflected on the data they collected. From this

process, they developed insights that reverberated far beyond the immediate context of their individual research questions and thus improved their capacity to teach well in general.

Implications of the Self-Extending System for Teacher Research and Teacher Education

In *The Early Detection of Reading Difficulties* (1985), Clay contrasts reading instruction that develops strategic behavior with reading instruction that encourages the acquisition of what she calls items of knowledge. According to her, the latter approach is far less effective and efficient than the former because “a child may have knowledge about letters and sounds and words but be unable to relate one to the other, to employ one as a cross-check to the other” (p. 14).

A similar relationship can be traced regarding professional learning for educators. Despite numerous critiques of traditional inservice models (Hollingsworth, 1994; Meyer et al., 1998; Miller, 1990; Wells, 1993), the primary organizational structure for ongoing teacher education in many schools and districts continues to be discrete, “expert”-led workshops on topics chosen with little or no input from teacher participants. While these workshops may promote the acquisition of information regarding pedagogy, curriculum, and assessment, they often fail to help teachers relate those items of knowledge to each other or use them flexibly in their teaching. In contrast, inquiry helped Mapleton teacher researchers to increase their item knowledge about particular approaches (e.g., literature circles or portfolios) as well as to develop more strategic behavior in general as teachers. Their experiences suggest the following recommendations for those who want to promote the development of a self-extending system through teacher research:

1. Teachers need sustained time for inquiry on a regular basis.

The recursive cycle of teacher research doesn’t lend itself easily to a couple of professional days scattered across the school calendar (nor, for that matter, to a couple of class sessions within a course). A “how to” workshop on literature circles might only require a 60-minute slot in a menu of inservice options, but Tobin’s inquiry project on that topic took six months (Chandler, 1999). In the course of that inquiry, Lorna explored a variety of issues around grouping, management, and comprehension instruction that were triggered by her interest in literature circles. Her learning was easily extended to other areas of her teaching.

Lorna might never have completed this inquiry, however, if she had been solely dependent on district-sponsored time to do it. With only one full-day and three half-day workshops built into the calendar (all of which were designated for aligning curriculum and assessment with the state standards), “official” time for reflection and research was scarce. Fortunately, the Mapleton group was supported by grant money, which allowed Lorna release time to share student work samples with her

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research partner, confer with me, and attend a schoolwide summer retreat for data analysis. But such grants are difficult to obtain, and initiatives that depend on them tend to be tenuous at best. Unless schools begin to put permanent structures in place to provide teacher researchers sustained time to do their work, it is unlikely that many teachers will be able to use inquiry to extend their competence as Tobin and her colleagues did. This potential limitation needs to be explicitly discussed in courses and workshops about teacher research, lest participants develop unrealistic expectations about what can be accomplished in the cracks and crevices of already-full school days.

2. Teachers need choice about inquiry topics.

When administrators give official support to teacher research, they often define such inquiry in a narrow fashion, pushing their staffs to consider the effects of a single program or strategy (e.g., reciprocal teaching or assertive discipline) or to develop an action plan for improving standardized test scores. I do not mean to suggest that such projects are without value, as some of them may indeed lead to meaningful change in schools where teachers support them, but they strike me largely as *system*-extending mechanisms—far more likely to further a particular administrative agenda than to contribute in lasting ways to teachers' ability to improve their practice. As I see it, teacher researchers themselves are the best judge of what inquiry topics will prove most fruitful for them. These choices need not be limitless—Mapleton group members, for example, worked easily within the boundaries of a negotiated umbrella topic—but individuals must be able to tailor their studies in ways that make sense given their professional-growth trajectories and their students' needs. Mandated topics are bound to fit some teachers less well than others, just as whole-class text selection works for some readers but not all.

When teachers choose their topics based on problems and tensions they observe in their particular classrooms, their work is more likely to be “generative,” a term Dixie Goswami uses to describe research that “raises questions for us as teacher researchers and questions for others” (quoted in Gillespie, 1994, p. 99). When questions ripple in this fashion, researchers learn to extend their findings to areas of their teaching beyond the scope of their individual inquiry. From such a vantage point, giving teachers some choice about their topics represents more than a way to increase their engagement; it also represents a way to increase the probability that insights from their work will transfer to other contexts. To prepare teachers for making these choices on their own in classroom contexts, they must also have choice of topics in courses and workshops meant to teach them strategies for inquiry.

3. Teachers need assistance to develop control over research strategies.

Although some of the procedures used in classroom-based inquiry overlap with those used in good teaching, data collection and analysis strategies are not “natural” processes for teachers any more than reading strategies are “natural” behaviors for

children. Both are learned within a particular social context, and most people learn them best from an experienced coach who can provide feedback and suggest alternatives. In the case of teacher research, such a coach need not be a university-based scholar, as both Karen Ernst (1994) and Terri Austin (1994) provide examples of strong research collectives led by K-12 classroom teachers. Nor does the coach need to be the same person over time; people can move in and out of the expert role as they learn new procedures and develop more confidence. But most teachers beginning to conduct research appear to need at least one person—preferably more than one—who can, in Wilhelm’s (1997) words, help them “to outgrow their current capacities” (p. 44). They need someone who can show them, for example, how to construct a quick sociogram, how to identify patterns with Post-its in a stack of student journals, or how to analyze a tape-recorded discussion without painstakingly transcribing it. And they need someone who understands that use of these strategies or others in the midst of K-12 teaching often differs from use of them in a university research project (Freedman, Simons, Kalnin, Casareno, & The M-Class Teams, 1999).

Once teachers are familiar with a range of research strategies, they usually invent others that work better for them in their own classrooms—and for their own purposes—than those advocated by even the most excellent resources on teacher research. At this point, they need far less assistance from their colleagues in carrying out their inquiries, and they become better able to use teacher research in creative, context-specific ways to improve their teaching. The ability to appropriate and innovate on these strategies takes time to develop, however, just as it takes time for children to develop control of reading strategies. Teachers need more than a “one-shot” inservice (Meyer, 1995) or a single class session to learn the intricacies of such processes as developing research questions, gathering data, and identifying patterns. Administrators or teacher leaders who experiment with classroom-based research as a form of professional development need to ensure that teachers have multiple opportunities for coaching during their inquiries, not just an inoculation of information at the beginning of the process. Without these ongoing interactions, teachers’ chance to improve their practice through systematic inquiry is greatly diminished.

In proposing that classroom-based inquiry might serve as a self-extending system for some teachers, I am not arguing that all teachers must be researchers to be successful. Clay (1998) herself reminds us that children often follow different paths to common outcomes, and the same is true of teacher-learners. Classroom-based research is just one of the paths that might lead to the initial development of a self-extending system. Others might include team teaching, graduate coursework, peer coaching, or independent reading and reflection. Most members of the Mapleton Teacher-Research Group, however, perceived classroom-based inquiry as more effective, as well as more sensitive to individual differences, than other kinds of professional development. Although she attributes her original develop-

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ment of a self-extending system to reading and consulting done long before the research group began, Gail Gibson, a teacher for 30 years at the time the group began, found that research gave her a “framework” to make her “existing system more efficient and child-centered” (E-mail, 12/16/99). Less experienced teachers found it useful in clarifying their belief systems and encouraging a focus on observable phenomena.

In the end, the construct of the self-extending system resonated in powerful ways for me and my Mapleton colleagues because it gave us a language to talk about the research we did as legitimate and deliberate teacher education, not simply something we dabbled in. We can't know whether this construct will resonate in similar ways for other educators working in other contexts. We hope, therefore, that this article will spark discussion of parallels (and perhaps non-parallels) between learning to read well and learning to teach well, in addition to parallels between powerful literacy instruction for children and potent professional development for adults. Keeping in mind the emphasis that Clay (1998) herself places on conversation as a method for extending learning and negotiating meaning, we look forward to a rich conversation with others about what it might mean to develop a self-extending system of strategies in multiple contexts.

References

- Adler, P.A., & Adler, P. (1994). Observational techniques. In N.K. Denzin & Y.S. Lincoln (Eds.), *Handbook of qualitative research* (pp. 377-392). Thousand Oaks, CA: Sage.
- Allen, J., Cary, M., & Delgado, L. (1995). *Exploring blue highways: Literacy reform, school change, and the creation of learning communities*. New York: Teachers College Press.
- Austin, T. (1994). The well-dressed Alaskan teacher researcher. *Teacher Research: The Journal of Classroom Inquiry*, 2(1), 66-80.
- Baumann, J., & Duffy-Hester, A. (2000). Making sense of classroom worlds: Methodology in teacher research. In M. Kamil, P. Mosenthal, P.D. Pearson, & R. Barr (Eds.), *Handbook of reading research, volume III* (pp. 77-98). Mahwah, NJ: Lawrence Erlbaum.
- Bisplinghoff, B.S. (1998). Developing the habits of organic inquiry. In B.S. Bisplinghoff & J. Allen (Eds.), *Engaging teachers: Creating teaching and researching relationships* (pp. 1-11). Portsmouth, NH: Heinemann.
- Bissex, G.L. (1996). *Partial truths: A memoir and essays on reading, writing, and researching*. Portsmouth, NH: Heinemann.
- Chandler, K. (1999). Working in her own context: A case study of one teacher researcher. *Language Arts*, 77(1), 27-33.
- Chandler, K., & the Mapleton Teacher Research Group. (1999). *Spelling inquiry: How one elementary school caught the mnemonic plague*. York, ME: Stenhouse.
- Chandler-Olcott, K. (2001). The spelling symposium: Examining a critical event in the history of a schoolwide teacher-research group. *English Education*, 33(3), 190-213.
- Clay, M.M. (1985). *The early detection of reading difficulties* (Third ed.). Portsmouth, NH: Heinemann.
- Clay, M.M. (1991). *Becoming literate: The construction of inner control*. Portsmouth, NH: Heinemann.

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- Clay, M.M. (1998). *By different paths to common outcomes*. York: ME: Stenhouse.
- Cochran-Smith, M., & Lytle, S. (1999). The teacher research movement: A decade later. *Educational Researcher*, 28 (7), 15-25.
- Cochran-Smith, M., & Lytle, S. (1993). *Inside/outside: Teacher research and knowledge*. New York: Teachers College Press.
- Dixon-Krauss, L. (1996). *Vygotsky in the classroom: Mediated literacy and learning*. White Plains, NY: Longman.
- Duke, C., Elliott, E., & McCracken, T. (1999, March). *What should teachers of English language arts know, who should measure it, and how?* National Council of Teachers of English Spring Conference, Cincinnati, OH.
- Ernst, K. (1994). A community of teachers learning. *Teacher Research: The Journal of Classroom Inquiry*, 1(2), 63-74.
- Fleischer, C. (1994). Researching teacher-research: A practitioner's retrospective. *English Education*, 26, 86-124.
- Fountas, I., & Pinnell, G.S. (1996). *Guided reading: Good first teaching for all children*. Portsmouth, NH: Heinemann.
- Freedman, S.W., Simons, E.R., Kalnin, J. S., Casareno, A., & The M-Class Teams. (1999). *Inside city schools: Investigating literacy in multicultural classrooms*. New York: Teachers College Press.
- Gallas, K. (1994). *The languages of learning: How children talk, write, dance, draw, and sing their understanding of the world*. New York: Teachers College Press.
- Gillespie, T. (1994). A conversation with Dixie Goswami. *Teacher Research: The Journal of Classroom Inquiry*, 1(2), 89-103.
- Goodman, K. (1986). *What's whole in whole language?* Portsmouth, NH: Heinemann.
- Goswami, D., & Stillman, P. (1987). *Reclaiming the classroom: Teacher research as an agency of change*. Portsmouth, NH: Heinemann-Boynton/Cook.
- Graham, P., & Hudson-Ross, S. (1999). Teacher candidate research on literacy in high school classrooms. In P. Graham, S. Hudson-Ross, C. Adkins, P. McWhorter, & J.M. Stewart (Eds.), *Teacher/mentor: A dialogue for collaborative learning* (pp. 65-79). New York: Teachers College Press.
- Hollingsworth, S. (1994). *Teacher research and urban literacy education: Lessons and conversations in a feminist key*. New York: Teachers College Press.
- Hollingsworth, S., & Sockett, H. (1994). *Teacher research and educational reform: Ninety-third yearbook of the National Society for the Study of Education*. Chicago, IL: University of Chicago Press.
- Hubbard, R.S., & Power, B.M. (1999). *Living the questions: A guide for teacher-researchers*. York, ME: Stenhouse.
- John-Steiner, V. (1985). *Notebooks of the mind*. Albuquerque, NM: University of New Mexico Press.
- McFarland, K.P., & Stansell, J.C. (1993). Historical perspectives. In L. Patterson, C.M. Santa, K.G. Short, & K. Smith (Eds.), *Teachers are researchers: Reflection and action* (pp. 12-18). Newark, DE: International Reading Association.
- Meyer, R.J. (1995). Servicing-in: An approach to teacher and staff development. *Teacher Research: The Journal of Classroom Inquiry*, 2(2), 1-17.
- Meyer, R.J., Brown, L., DeNino, E., Larson, K., McKenzie, M., Ridder, K., & Zetterman, K. (1998). *Composing a teacher study group: Learning about inquiry in primary class-*

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- rooms. Mahwah, NJ: Lawrence Erlbaum.
- Miller, J.L. (1990). *Creating spaces and finding voices: Teachers collaborating for empowerment*. Albany, NY: State University of New York Press.
- Nagel, G.K., Golez, F., Nieto, C., & Whitney, L. (1999, December). Listening to voices of practicing teachers to examine the effectiveness of a teacher education program. Paper presented at the Annual Meeting of the National Reading Conference, Orlando, FL.
- Ray, R. (1993). *The practice of theory: Teacher research in composition*. Urbana, IL: National Council of Teachers of English.
- Spradley, J.P. (1980). *Participant observation*. New York: Holt, Rinehart, & Winston.
- Stake, R. (1995). *The art of case study research*. Thousand Oaks, CA: Sage.
- Strauss, A., & Corbin, J. (1998). *Basics of qualitative research: Techniques and procedures for developing grounded theory* (Sec. ed.). Thousand Oaks, CA: Sage.
- Tillotson, J.W. (1998). A cycle of excellence in science teacher development. Paper presented at the Association for the Education of Teachers in Science Conference, Minneapolis, MN.
- Vygotsky, L. (1978). *Mind in society: The development of higher psychological processes*. Cambridge, MA: Massachusetts Institute of Technology Press.
- Weaver, C. (1990). *Understanding whole language: From principles to practice*. Portsmouth, NH: Heinemann.
- Wells, G. (1993). *Changing schools from within: Creating communities of inquiry*. Portsmouth, NH: Heinemann.
- Wilhelm, J. (1997). Of cornflakes, hotdogs, cabbages, and King. In B. Power, J. Wilhelm, & K. Chandler (Eds.), *Reading Stephen King: Issues of censorship, student choice, and popular fiction* (pp. 37-50). Urbana, IL: National Council of Teachers of English.
- Wood, D. (1988). *How children think and learn: The social contexts of cognitive development*. Cambridge, UK: Basil Blackwell.
- Wright, K. (2000). Weekly spelling meetings: Improving spelling instruction through classroom-based inquiry. *Language Arts*, 77, 218-223.